If you are using a printed copy of this procedure, and not the on-screen version, then you MUST make sure the dates at the bottom of the printed copy and the on-screen version match. The on-screen version of the Collider-Accelerator Department Procedure is the Official Version. Hard copies of all signed, official, C-A Operating Procedures are available by contacting the ESSHQ Procedures Coordinator, Bldg. 911A

C-A OPERATIONS PROCEDURES MANUAL

16.4.9 Troubleshooting Magnet Temperature PLC Trips

(Collider Accelerator Support Group Procedure A.9.0)

Note: This document was formerly a C-A Group Procedure. The content of the group procedure was reviewed by the Technical Supervisor. All approvals and/or issue dates of the original group procedure are maintained for present use.

Hand Processed Changes

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Approved: _____***Signature on File***_____ _____
Collider-Accelerator Department Chairman Date

F. Kobasiuk

Collider Accelerator Support Group
Procedure A.9.0
Original Issue Date: 10/26/06
Revision 00

DATE: 10/26/2006
ISSUED BY: F. Kobasiuk
SUBJECT: Troubleshooting Magnet Temperature PLC Trips

1. PURPOSE

1.1 To provide the CAS Watch with guidelines for troubleshooting magnet Delta T and Over Temperature PLC Trips.

2. RESPONSIBILTY

2.1 The CAS Coordinator is responsible for implementing and carrying out this procedure.

3. PREREQUISITES

3.1 The assumption is made that the cooling supply system, filter system, magnet strainer, PS performance, and the operating current of the problem magnet are confirmed to be normal.

3.2 Confer with the experimenter and inquire background information prior to the failure.

Was the magnet running steady state upon failure or had it just been turned off in a controlled manner.

4. PRECAUTIONS

4.1 Do not increase the Delta T trip setting above a 60 degree differential on any beam line magnets.

4.2 Do not increase the maximum temperature trip setting without the authorization from one of the following people in the order listed. (Do not exceed 190 degrees F)

- Liaison Engineer
- Beam & Mechanical Service Group Supervisor
- FES Technical Groups Supervisor
- FES Group Leader

5. PROCEDURE

for Delta 'T' Trips

5.1 Record the cooling path number of the delta trip.

5.2 Reset the PLC and check that all the temperature readings are about equal with

the magnet off (ambient)

5.2.1 If normal, continue this procedure at Step 5.3

5.2.2 If abnormal, troubleshoot and make repairs as necessary to the problem circuit or PLC program.

Note:
The following actions/options listed under 5.3 are used at the discretion of the CAS Coordinator with his decision making influenced by the status of the CAD program, workload, impact on the experiment, and the magnitude of temperature differential.

5.3 Options

5.3.1 Increase the Delta T trip setting in increments of 10 degrees to permit the magnet to operate without any corrective action taken and issue a work order. (Do not exceed 60 degree diff)

5.3.2 Backflush the magnet for 1/2 hour. When accessible and equipped with path isolation valves, backflush only the troubled path for the 1/2 hour period.

5.3.3 Call in a BMSG Technician for repairs.

5.3.4 A discretionary and systematic use of all the actions/options stated above.

6. **PROCEDURE** for Over-Temperature Trips

6.1 Record the cooling path number of the over-temperature trip.

6.2 Reset the PLC and check that all the temperature readings are about equal with the magnet off (ambient)

6.2.1 If normal, continue this procedure at Step 6.3

6.2.2 If abnormal, troubleshoot and make repairs as necessary to the problem circuit or PLC program.

6.3 Backflush the magnet for 1/2 hour. When accessible and equipped with path isolation valves, backflush only the troubled path for the 1/2 hour period.

6.4 Run the magnet up to operating current and monitor temperature.

6.4.1 If temperature is normal, this procedure is complete.

6.4.2 If temperature is still elevated but within the trip limit, issue an FES Work Order on the troubled path.

6.4.3 If temperature is still elevated above the trip limit continue this procedure at Step 6.5.

6.5 Call in a BMSG Technician for repairs.

6.6 Confer with the liaison engineer when action taken by the BMSG Technician is unsuccessful.

7. DOCUMENTATION

7.1 CAS Work Control Log 7.2 CAS Summary Log

8. REFERENCES

None

9. ATTACHMENTS

None